This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (previously presented) In a computer system having a processor, a bus, and a graphics rendering pipeline for displaying 3D graphics on a display, a computer implemented method for rendering a NURBS defined curve or surface without first converting the NURBS defined curve or surface to a polygon mesh, the method comprising the computer implemented steps of:

a) receiving a NURBS model for rendering from a software program running on the processor of the computer system ;

b) converting the NURBS model to a Bezier model using the graphics rendering pipeline;

c) generating a plurality of Bezier control points from a corresponding plurality of NURBS control points using a tri-linear interpolator in the graphics pipeline by:

c1) using the plurality of NURBS control points as inputs to the tri-linear interpolator; and

c2) evaluating the NURBS control points to obtain each of the plurality of Bezier control points;

d) generating a plurality of points on a curve or surface, wherein the curve or surface is defined by the Bezier model, using the graphics rendering pipeline; and

e) rendering the curve or surface defined by the NURBS model using the plurality of points and using the graphics rendering pipeline such that the curve or surface is rendered without first converting the NURBS model to a polygon mesh.

2. (original) The method of claim 1 wherein step

a) further includes the step of receiving the NURBS model in the graphics rendering pipeline via the bus, wherein the NURBS model defines all of a curve or surface, or a portion of the curve or surface, to be rendered.

Claims 3-5 (canceled)

6. (original) The method of claim 1 wherein step c) further includes the step of generating a plurality of points on the curve or surface using a plurality of Bezier control points.

7. (original) The method of claim 6 further including the steps of: using the plurality of Bezier control points as inputs to a tri-linear interpolator; and

evaluating the plurality of Bezier control points to obtain the plurality of points on the curve or surface.

8. (original) The method of claim 1 further including the steps of: processing the plurality of points with the graphics rendering pipeline; and rendering the curve or surface with the graphics rendering pipeline.

9. (previously presented) In a graphics rendering pipeline of a computer system, a method for rendering NURBS defined curves or surfaces using the graphics rendering pipeline without first converting the NURBS defined curve or surface to a polygon mesh, the method comprising the steps of:

a) implementing a de Casteljau process in the graphics pipeline;

b) evaluating a Bezier curve or surface using the de Casteljau process; and

c) implementing the de Casteljau process using a tri-linear interpolator included in the graphics pipeline by:

loading inputs of the tri-linear interpolator with a plurality of control points of the Bezier curve or surface; and

generating a plurality of points on the curve or surface using the tri-linear interpolator; and

d) rendering the Bezier curve or surface without first converting the Bezier curve or surface to a polygon mesh.

Claims 10-11 (canceled)

12. (previously presented) The method of claim 9 further including the step of using the plurality of points to render the Bezier curve or surface.

Claims 13-15 (canceled)

16. (original) In a graphics rendering pipeline of a computer system, a method for generating normal vectors (normals) for a surface, the method comprising the steps of:

a) generating a plurality of surface partials from the surface by loading inputs of a tri-linear interpolator included in a graphics rendering pipeline with a plurality of Bezier control points defining the surface;

b) generating a plurality of surface tangents from the plurality of surface partials using the graphics rendering pipeline; and

c) generating at least one normal from the plurality of surface tangents using the graphics rendering pipeline.

Claim 17 (canceled)

18. (original) The method of claim 16 further including the step of generating the plurality of surface tangents from the plurality of surface partials using a blender included in the graphics rendering pipeline.

19. (original) The method of claim 18 further including the step of generating the at least one normal from the plurality of surface tangents using the blender.

20. (original) In a graphics rendering pipeline of a computer system, a method of using the graphics rendering pipeline to render a curve or surface directly from a NURBS (non-uniform rational B-spline) model, the method comprising the steps of:

a) performing a global to local transformation on a NURBS model using the graphics rendering pipeline;

b) evaluating a plurality of NURBS control points using tri-linear interpolation in the graphics rendering pipeline to obtain a plurality of points on a curve or surface defined by the NURBS model; and

c) rendering the curve or surface using the plurality of points.

21. (original) The method of claim 20 further including the step of indexing at least one look up table within the graphics rendering pipeline to perform the global to local transformation of the NURBS model.

22. (original) The method of claim 21 further including the step of evaluating the plurality of NURBS control points using a tri-linear interpolator included in the graphics rendering pipeline.

23. (original) The method of claim 22 further including the step of indexing the at least one look up table with the graphics rendering pipeline to obtain a plurality of parameters to configure the tri-linear interpolator;

24. (original) The method of claim 23 further including the steps of:
implementing a quadri-linear interpolator using said tri-linear interpolator; and
generating the plurality of control points using said quadri-linear interpolator.

25. (original) The method of claim 20 wherein step b) further includes the steps of:
using the graphics rendering pipeline to implement a convolution; and using the convolution to obtain the plurality of points on the curve or surface.